Case Report

Testicular epidermoid cyst: A rare case

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Abstract

Testicular epidermoid cysts are a rare cause of testicular pathology. No cases of recurrence or metastasis have been reported in the literature. As a result, inguinal partial orchiectomy with frozen section has recently become standard treatment. A 43-year-old male presented with right testicular discomfort and the presence of mass. Right inguinal partial orchiectomy with frozen section was performed, and the right testicle was preserved. The final pathology report confirmed the diagnosis of an epidermoid cyst. The importance of accurate diagnosis of this benign lesion is crucial for the prevention of unnecessary radical orchiectomy.

Keywords: Cyst, epidermoid, testicular, tumor

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INTRODUCTION

Epidermoid cysts are benign masses of epithelial hyperplasia commonly found in hair-bearing areas.[1] However, testicular epidermoid cysts are a rare cause of testicular pathology responsible for 2.1% of all testicular masses.[2-4] Both germ cell tumors and epidermoid cysts are seen most commonly in Caucasians, within the second to fourth decade of life.[2,3] In comparison, germ cell tumors are of malignant etiology and are responsible for 95% of testicular lesions.[3] Dockerty and Priestly are often credited with the intitial description of a testicular epidermoid cyst in 1942.[5] The etiology of epidermoid cysts is still debated in the literature to date.[6,7]

Testicular epidermoid cysts present most commonly as a painless enlargement of the testis (41%). Less frequently, detection occurs during routine examination (33%). History of a long-standing testicular mass is common ranging from 2 weeks to 7 years, with a mean of 15 months.[8] On physical examination, a firm mass can be palpated in 76% of cases most frequently in the upper pole of the testis.[3,5,9]

CASE REPORT

A 43-year-old male presented with right testicular discomfort and the presence of mass. The patient denied any previous history of scrotal injury or irritative urinary symptoms. Physical examination revealed normal penile structure with bilateral descended testicles, a palpable right intratesticular mass, and no lymphadenopathy in the groin region. Ultrasound showed evidence of a hypoechoic 1.4 cm × 1.3 cm intratesticular mass [Figure 1]. Magnetic resonance imaging (MRI) of the scrotum confirmed the presence of an enhancing 1.4 cm intratesticular mass [Figure 2]. Considering malignancy, the right inguinal partial orchiectomy through right inguinal incision and frozen section was performed which revealed no evidence of

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Figure 1: Ultrasound showing evidence of a hypoechoic well circumscribed 1.4 cm × 1.3 cm intratesticular mass

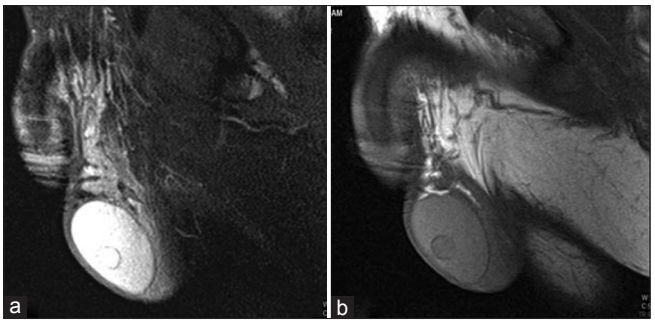

Figure 2: Pelvic magnetic resonance imaging attention of scrotum with and without contrast showing anterior mid right intratesticular mass of 12 mm × 11 mm × 13 mm appear well marginated with a defined capsule, internal slightly T2 isointense signal (a) and no enhancement T1 hypointense (b)

malignancy. The specimen was a 1.5 cm × 1.4 cm × 0.9 cm oval cyst with tan-gray smooth surface with wall thickness <0.1 cm. As a result, the right testicle was preserved. Final pathology showed a benign cyst with fibrosis and dystrophic calcification with abundant necrotic debris and no viable epithelial lining and confirmed the diagnosis of an epidermoid cyst with no atypical or malignant features identified [Figure 3].

DISCUSSION

Ultrasound is the first step in the diagnosis of a testicular mass. Specifically, the sonographic appearance of a well circumscribed hypoechoic lesion with hyperechoic margins is suggestive of an epidermoid cyst.[2] An "onion ring" or "bull's eye" appearance describing the alternating hypo- and hyperechogenic layers consistent with of keratin deposition within the lumen may also be seen.[6,10] MRI can help in the diagnosis showing hyperintense T1-weighted areas representing intracystic lipid aggregates of proteinaceous cystic contents. Ultimately, the histological analysis is required to confirm the diagnosis and is done intraoperatively through frozen section. Gross findings include a well circumscribed or encapsulated round, oval mass with a 1–4 mm thick wall. A complete or incomplete lining of squamous epithelial filled with white/gray desquamated keratinized debris or proteinaceous material is seen.[1,8,9] The mass is surrounded by compressional atrophy while the seminiferous tubules located away from the mass are normal in appearance.[3,11] Histologically, immunological staining for placental alkaline phosphatase shows the absence of testicular intraepithelial neoplasia.[2] Price described five criteria for diagnosis; the lesion must be cystic and located within the testicular parenchyma, the cystic lumen be filled with keratin, the wall be comprised fibrous tissue predominantly lined by squamous epithelium, the cyst must be devoid of teratomatous features or adnexal structures inside either the cystic wall or parenchyma, with the absence of a scar throughout the entire testicular parenchyma.[3]

No reported cases of local recurrence or metastasis have been found in the literature, thus, testis-sparing excision has recently become the treatment of choice.[6] This treatment method requires partial orchiectomy followed by intraoperative frozen section to rule out malignancy. If the pathology is reported as benign the procedure can be terminated, however, if the final pathology describes a teratoma or malignant pathology, radical orchiectomy is required.[2] This requires the absence of mitotic activity, cytological atypia, skin, adnexal structures, necrosis, hemorrhage, and epithelial hyperplasia for avoidance of radical orchiectomy.[4,5,12]

Several theories have been postulated describing the potential etiology of testicular epidermoid cysts.[2] First, several reports have claimed that these cysts are teratomatous in origin arising from a monodermal proliferation of epidermal (ectoderm) cells. Unlike true teratomas which contain at least two different embryonic germ layers, epidermal cysts lack mesodermal, and endodermal components. Monolayer teratomas have also been reported in the ovary as struma ovarii and pseudomucinous cystadenoma of the ovary.[8] Teratomas are considered malignant and are classified as a subtype of germ cell tumors of the testis. Both epidermal cells and teratomas occur in the same patient age range, have a preference for the right testicle, and occur most commonly in Caucasian males.[4] Epidermal cells, unlike teratomatous lesions, are benign, do not metastasize, and do not recur. In addition, epidermal cysts do not

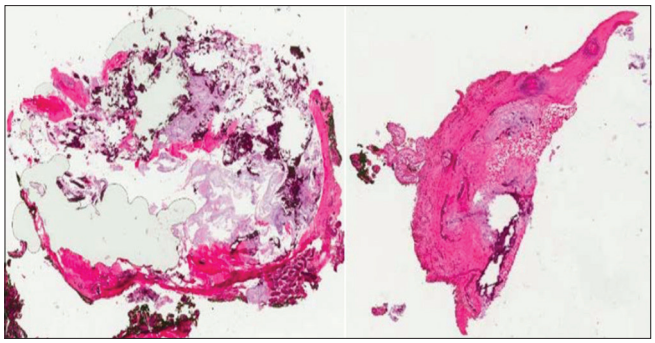

Figure 3: Pathology slides showing a benign epidermoid cyst with dystrophic calcification. There is abundant necrotic debris with no viable epithelial lining of the cyst. A small amount of normal testicular parenchyma and seminiferous tubules seen on the outside of the cystic mass. No atypical or malignant features identified

have markers of chromosome 12p anomalies seen in germ cell tumors, such as increase in alpha-fetoprotein and beta human chorionic gonadotropin.[4] Epidermal cysts, also, lack testicular intraepithelial neoplasia and carcinoma *in situ* of the surrounding seminiferous tubules of teratomatous lesions and 80%–100% of germ cell tumors.[2,6] Therefore, this theory has been rejected by the current literature. A second supported theory is described as a metaplasia of epidermal cells from the rete testis secondary to an obstruction of the epidermal tube. However, the different locations of the cysts reported do not support this theory.[9] The third is the development of epidermoid cysts from keratinization of the rete testis. This theory does not describe the development of squamous metaplasia of the epithelium seen on histology.[8] Finally, the fourth theory is the displacement of embryological derived squamous cells from the scrotal skin to the testis. However, there is still lack of evidence to support this theory.[4]

CONCLUSION

All testicular masses are considered malignant until proven otherwise. The importance of accurate diagnosis of this benign lesion is crucial for the prevention of unnecessary radical orchiectomy.

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Conflicts of interest
There are no conflicts of interest.

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